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THE IMPACT OF PERCUTANEOUS CORONARY INTERVENTION FOR CTO LESIONS AND CONTRAST MEDIA ON RENAL FUNCTION: THE ROLE OF RETROGRADE APPROACH

i2 Poster Contributions
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Authors: *Masashi Kimura, Soichiro Ebisawa, Nobuyoshi Tanaka, Kenya Nasu, Tatsuya Ito, Yoshihisa Kinoshita, Mariko Ehara, Etsuo Tsuchikane, Yasushi Asakura, Mitsuyasu Terashima, Osamu Katoh, Takahiko Suzuki, Toyohashi Heart Center, Toyohashi, Japan*

Background: Contrast media (CM) volume, one of the major risk factors for contrast-induced nephropathy (CIN), represents an extremely important concern in the management of patients with chronic total occlusions (CTOs) lesions. The aim of this study was to evaluate the impact of CTO procedures and CM use on renal function.

Methods: We evaluated in-hospital, procedural outcomes related to renal function in 510 consecutive patients who underwent PCI for CTOs of > 3 months in duration between April 2006 and March 2010, reporting baseline and 48 h postprocedural creatinine (post Cr) levels. The impact of a retrograde approach on renal function was also evaluated. CIN is defined as an absolute (≥0.5 mg/dl) or relative (≥25%) increase in serum Cr levels compared to baseline values after exposure to CM.

Results: In 510 consecutive CTO patients (mean age, 66 ± 11 yrs; 83.3% male), CIN occurred in 10.8% (55/510). Patients who developed CIN were older (70.0 ± 9.9 yrs. vs. 65.0 ± 10.9 yrs., p=0.0016), had longer fluoroscopy time (75.2 ± 47.0 min vs. 51.7 ± 35.0 min, p=0.0001) and received a higher amount of CM (424 ± 212 ml vs. 326 ± 151 ml, p<0.00001) than those who did not develop CIN. Multivariate logistic regression analysis revealed that significant predictors of CIN were age (OR 2.8, 95%CI 1.025-1.140) and CM volume (OR 3.0, 95%CI 1.004-1.006). Of 510 patients, a retrograde approach was attempted in 140. When patients receiving a retrograde approach were compared with patients receiving an antegrade approach, no significant differences were observed in post Cr levels (0.94 ± 0.30 mg/dl vs. 0.95 ± 0.27 mg/dl), or incidence of CIN (12.1% vs. 10.0%), although a significantly higher amount of CM was administered in cases utilizing a retrograde approach (418 ± 79 ml vs. 308 ± 146 ml, p<0.0001).

Conclusions: The incidence of CIN following CTO-PCI was relatively high. To prevent CIN, careful attention should be paid to identifying patients at risk for the condition and minimizing the amount of CM used during CTO-PCI. The incidence of CIN following a retrograde approach was comparable with that accompanied by an antegrade approach despite the administration of larger volumes of CM.